Haralson County High School
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BEN: 32664 **E-Rate Discount**: 82%

EDU2011 Pilot Program **WC Docket No. 10-222**
TITLE: Interim Report **DEADLINE: February 24, 2012**

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REQUIRED INFORMATION

1. Project Benefits

a. A description of how the wireless devices were integrated into the project's curriculum and objectives (including approximately how many times per week the wireless devices were used to access program materials remotely and how many wireless devices were used during this period of time).

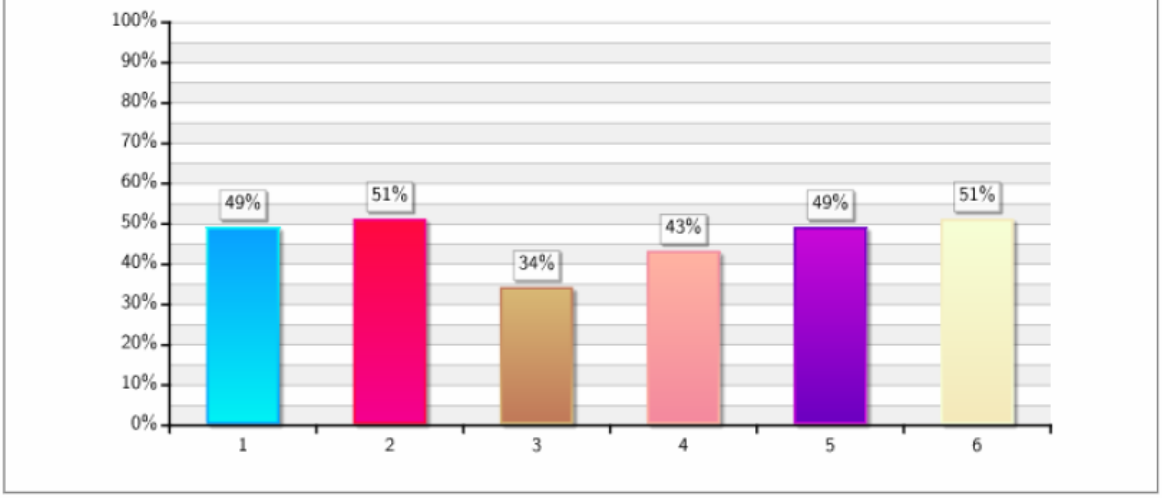
i. The Haralson County School System provided netbook mobile learning devices to each student at the Haralson County High School for use during the academic year. Along with the devices teachers received training from the NorthWest Georgia ETC (a state agency charged with helping integrate technology into teaching) to help them create blended learning opportunities for their students. Many of these opportunities focused on the use of Moodle. Moodle is an open source learning management system that allows students and teachers to access course content 24/7 from any location. In order to facilitate the use of Moodle the EDU2011 grant was combined with the Blended Learning Grant to facilitate the access of these resources from home. During the course of the grant 69% of the teaching staff at the high school created one or more Moodle courses. Fully 98% of the teaching staff have accessed Moodle at some point during the course of the Grant.

One measure of progress on the Blended Learning Grant are student scores on the 21st Century Skills Test. In the grant pretest, HCHS students scored in the "Basic" range on the 21st Century Skills Assessment in fall of 2011; however, the teachers proctoring the post-test reported that students encountered some network delays that prevented them from accessing and taking the test. As a result only 341 of the 502 pre-test takers could access and complete the test. With 33% of the post-test takers eliminated from the score averages, the post-test was rendered an invalid measure of success in 21st Century skills for the first year of the Grant.

Along with the 21st Century Skills Assessment, an observation instrument was developed by the ETC to assess the use of technology in the classroom. The instrument is designed to measure a number of elements of effective technology integration in the classroom including collaborative learning opportunities, effective student questioning, and clear communication of expectations. From August 2011 to January 2012, forty-seven classroom observations were conducted. The table and chart below is a summary of the results of these observations:

Teacher: (Based on 47 walk-throughs)		
BL - Teacher:	**Selected**	**%**
1. Clearly communicates expectations for task / assignment	23	49%
2. Monitors and asks questions that reflect student ideas	24	51%
3. Connects work to daily element	16	34%
4. Summarizes steps of process or activity	20	43%
5. Provides feedback and guidance	23	49%
6. Blending technology within the lesson	24	51%

BL - Teacher: Selected



A comparison of GHST test scores form the previous three years show a modest gain in scores. The table below indicates a the percentage increase in students meeting or exceeding Academic Yearly Progress at Haralson County High School in the areas of Mathematics and Language Arts.

Academic Year	GHST Math Scores	GHST Language Arts Scores
2010/2011	76%	90.8%
2009/2010	74.9%	87.7%
2008/2009	74.9%	87.7%

ii. On average students use 400 MB of data per week over the course of the entire grant period so far. The data below represents data usage at three discrete points during the project.

The average usage in March/April/May 2011 was 323 MB/per user.
The following table shows data usage at six discrete levels and the number of students using the respective data.

Users over 5GB	8	1.01%
Users over 2GB less Than 5GB	27	3.40%
Users over 1GB less Than 2GB	38	4.79%
Users over 100MB less Than 1GB	126	15.87%
Users over 0.1MB less Than 100MB	283	35.64%
Users with Zero Usage	312	39.29%

By contrast, the average usage in November2011/December2011/January 2012 was 1.57 GB/per user. The usage in year 2 is significantly higher mainly due to 66 users who are using more than 5GB and one user at 49GB.

The following table shows data usage at eight discrete levels and the number of students using the respective data.

Users over 20GB less than 50GB	6	0.54%
Users over 10GB less than 20GB	14	1.27%
Users over 5GB less than 10GB	46	4.16%
Users over 2GB less Than 5GB	133	12.04%
Users over 1GB less Than 2GB	228	20.63%
Users over 100MB less Than 1GB	441	39.91%
Users over 0.1MB less Than 100MB	60	5.43%
Users with Zero Usage	177	16.02%

The average usage in March/April/May 2011 was 1.57 GB/per user.
The following table shows data usage at eight discrete levels and the number of students using the respective data.

Users over 20GB less than 50GB	5	Less than 0%
Users over 10GB less Than 20GB	14	1%
Users over 5GB less than 10GB	47	4%
Users over 2GB less than 5GB	357	32%
Users over 1GB less than 2GB	148	13%
Users over 100MB less than 1GB	278	25%
Users less than 100MB	72	7%
Users with Zero Usage	176	16%

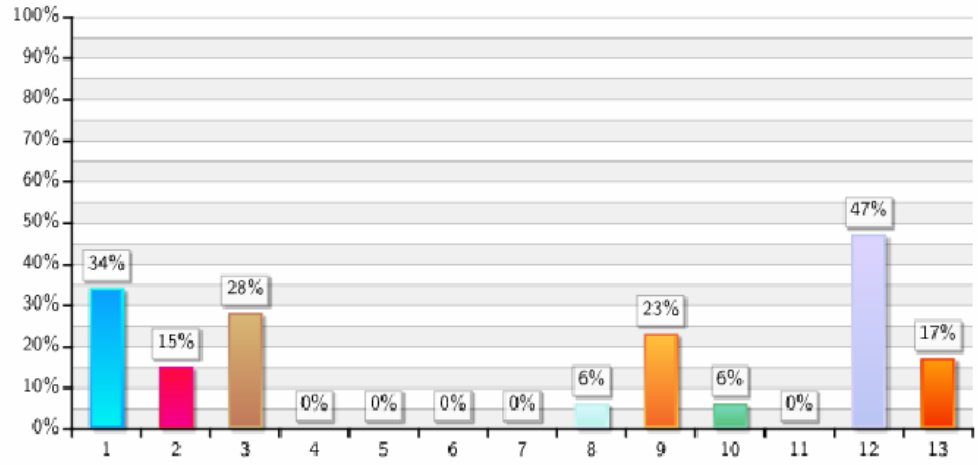
b. If available, a detailed summary of any data collected by the school or library on the project's outcomes.

The EDU2011 grant was combined with a Blended Learning Grant sponsored by the state of Georgia. As a part of this grant, observation instruments were developed to determine the level of technology integration which was occurring in the classroom.

As discussed previously observational data was collected on the use of technology by teachers. Along with this data observational data was also collected regarding student use of technology. Among the extensive number of potential activities thirteen discrete activities were selected for observation based on the instructional relevance. The table below lists these activities and the number of times they were observed between August 1, 2011 and January 30, 2012.

Student Activities (Based on 47 walk-throughs)		
Student Activities - BL	**Selected**	**%**
1. MOODLE	16	34%
2. Collaborative projects	7	15%
3. Digital Content resources	13	28%
4. iPod APPS	0	0%
5. Blogs/wikis	0	0%
6. Podcasting	0	0%
7. iTunes University	0	0%
8. Drill and Practice	3	6%
9. Information Analysis	11	23%
10. Research	3	6%
11. Test-taking	0	0%
12. Class Discussion	22	47%
13. Taking Notes with Netbook	8	17%

Student Activities - BL Selected



c. If available, a copy of any results or summary of the results of any survey given to students, teachers, parents, or library patrons to assess any aspects of the off-premises wireless project.

At this time the new Chief Technology Office for the district is in the process of collecting additional qualitative and quantitative data regarding the impact of the project on student learning.

2. Project Costs

An analysis of the per student cost of the off-premises connectivity.

The Haralson County High School provides 1,108 students with wireless broad band connectivity as a result of this project. The cost per student is 38.01 which, when multiplied by the total number of students comes to 42115.08 monthly or 505380.96 annually. The current E-Rate discount for the Haralson County School district is 82% so that after the current erate discount the school district will pay 90,968 annually to continue to support after school access for its high school students.

3. Effectiveness of Protective Measures

a. A detailed description of the measures, including specific software or filtering mechanisms that were taken to ensure compliance with the Children's Internet Projection Act as well as a description of measures that were taken to protect against waste, fraud, and abuse.

i. To insure utilization of appropriate safety measures to meet the requirements of the Children's Internet Protection Act (CIPA), the district servers have been equipped with a SonicWall E5500 firewall and a M86 Web filter. All netbooks are configured with a M86 Mobile Clients to ensure CIPA compliance with students are accessing the Internet while at home. Through these services, the Haralson County School District maintains the ability to filter the website requests of students and also monitor the traffic patterns of all users thus allowing for modification of the filter parameters as needed. To protect against waste, fraud, and abuse the district has issues parental consent forms detailing the objectives of the project, expectations for usage both in and out of school along with consequences for misuse and damage or loss of the mobile learning device. Parents also attended meetings at the Haralson County High School in which policies related to Internet usage, misuse, theft, and the consequences for violation of those policies were explained.

b. A detailed description of what, if any, issues arose in ensuring that the wireless devices were used only for education purposes.

While web filtering was implemented on all of the devices, the ability of the district to control access to the devices was limited once the students left school. While the vast majority of the students used the devices for their intended purposes a few students were able to "hack" the netbooks so that they became unusable. When this happened disciplinary measures were taken as per the policy explained to the parents and students when the netbooks were initially issued.

The district has also implemented a virtulization initiative in which each student will ultimately receive their own virtualized desktop which will be available through a thin client, tablet, or other computing device. As the netbooks become unusable due to obsolescence students will be issued a thin client. The use of virtual desktops should reduce the amount of abuse and technical support required to support the devices.

4. Lessons Learned

a. A description of any technical, operational, or administrative problems or issues associated with implementing the project (such as barriers in using the wireless devices or difficulties with the service) and a description of how those issues were addressed or are being addressed.

Problems implementing the project have primarily revolved around two areas, wireless access in the school and maintenance of the netbooks themselves. While there have been some problems with wireless access outside of the school, those issues have been minimal. The district does foresee the necessity of 4G access in the near future. Currently, Verizon only provides 3G access to the county and as more instructional materials, especially video, becomes available for the classroom, students will need unfettered access to these data intensive resources.

The more significant issues has been wireless access inside of the school. Due to the school's construction the district has had to create a wireless access infrastructure in the school and this has been problematic due to the unique nature of the educational environment which requires high availability of large amounts of bandwidth at one time. This along with the older radios in

the netbooks which require 2.5 mhz transmitters have meant several “false starts” to implementing wireless in the high school. Recently the wireless engineers hired for the project solved the problems of older wireless technology and peak usage times. The solution has been implemented in one building of the high school complex over Christmas break and recently the entire campus was upgraded to the new system.

The second significant issue which arose as a part of the project has been the amount staff time necessary to maintain the equipment. While intentional abuse has been minimal the netbooks used in this project have experienced a high number of equipment failures and so have required a great deal of maintenance to keep them operational. One of the district’s technology staff has taken the lead on this effort and she works closely with the ETC as well as a group of students at the high school to help keep the equipment in working order. These efforts include re-imaging the devices, repairing broken screens, and replacing faulty equipment. While incidents such as faulty equipment are not occurring at a rate higher than would normally be expected, the exponential increase in the number of devices has meant that the problems have increased proportionately and have meant increased staff time to maintain and support the devices.

b. A narrative of the lessons learned as a result of the off-premise wireless project (for example, based on what you learned from the project, how would you plan and implement your project differently if you were doing it over again?).

The project has been a learning process for the entire district including the new Chief Technology Officer who recently inherited the project from his predecessor.

The first lesson learned has been the necessity to better coordinate/test the interoperability of the various technologies involved in the project. Wireless access on site has been extremely problematic and only recently solved. A testing/prototyping period should have been implemented to ensure that the netbooks and the wireless would work well together. If the project were being implemented at this time, the district would probably have elected to use tablets with VMView clients installed on the tablets thus allowing students full access to the resources of the district in a more controlled environment. The use of tablets would have meant fewer wireless access problems due to the compatibility with most of today's wireless solutions. Combined with the district’s current virtualization project, the use of tablet computers would mean that the students would have all of the computing resources of the district available to them in a more controlled environment. Furthermore, as more tablets come to market the prices of tablets will continue to fall dramatically and more resources to manage tablet devices remotely would mean fewer resources would need to be spent on maintaining devices.

A second lesson learned from the project has been the costs associated with the project. The costs associated with providing each student with their own computing device along with unfettered wireless access are substantial. It is the desire of the district to expand this project to all students in the district. In order to do this a considerable investment will need to be spent on infrastructure and devices alone. When the costs associated with providing data access plans at current market rates are added the costs associated with providing every student with ubiquitous access to a complete range of electronic resources becomes prohibitive. Yet, as the 21st Century continues to unfold it will be imperative for all of our students to have full access to

all of the electronic resources that they will need to be successful in school and in the new world economy.